

What is claimed is:

1. A method for preventing contamination of a transfer roller in an image forming system, the method comprising:

5 (a) setting a separation time of the transfer roller from a transfer belt according to the size of paper picked-up from a paper feeding cassette and the size of paper set in a printer driver; and

(b) separating the transfer roller from the transfer belt when the separation time of the transfer roller set in (a) has elapsed.

10 2. The method of claim 1, wherein (a) comprises:

(a1) comparing the size of the picked-up paper with the size of the set paper;

(a2) if the size of the picked-up paper is the same as or larger than the size of the set paper, setting the separation time to a first predetermined time; and

15 (a3) if the size of the picked-up paper is smaller than the size of the set paper, setting the separation time to a second predetermined time.

3. The method of claim 2, wherein (a1) is performed with respect to a vertical scanning direction of the picked-up paper and the set paper.

20 4. The method of claim 2, wherein the first predetermined time is a time period from a time when a rear end of paper is detected by a paper feeding sensor to a time when the rear end of paper is detected by the transfer roller.

25 5. The method of claim 2, wherein the second predetermined time is a predetermined value smaller than a time period from a time when a rear end of paper is detected by the paper feeding sensor to a time when the rear end of paper is detected by the transfer roller.

30 6. The method of claim 2, wherein the second predetermined time is '0'.

7. The method of claim 1, wherein (b) comprises:

(b1) the transfer belt contacting the transfer roller and performing a transfer operation from the time when the rear end of paper is detected by the paper feeding sensor to the separation time of the transfer roller set in (a); and

5 (b2) separating the transfer roller from the transfer belt when the separation time of the transfer roller has elapsed.

8. The method of claim 7, wherein if the size of the picked-up paper is the same as or larger than the size of the set paper, the separation time of the transfer roller is a time period from a time when the rear end of paper is detected by  
10 the paper feeding sensor to a time when the rear end of the paper is detected by the transfer roller.

9. The method of claim 7, wherein if the size of the picked-up paper is smaller than the size of the set paper, the separation time of the transfer roller is a  
15 predetermined value smaller than a time period from a time when the rear end of paper is detected by the paper feeding sensor to a time when the rear end of the paper is detected by the transfer roller.

10. The method of claim 7, wherein if the size of the picked-up paper is  
20 smaller than the size of the set paper, the separation time of the transfer roller is '0'.

11. A computer readable medium of instructions adapted to control an image forming system to prevent contamination of a transfer roller comprising:  
a first set of instructions adapted to control the system to set a separation  
25 time of the transfer roller from a transfer belt according to the size of paper picked-up from a paper feeding cassette and the size of paper set in a printer driver; and  
a second set of instructions adapted to control the system to separate the transfer roller from the transfer belt when the separation time of the transfer roller has elapsed.

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12. The computer readable medium of instructions of claim 11, further comprising:

a third set of instructions adapted to control the system to compare the size of the picked-up paper with the size of the set paper;

to set the separation time to a first time period if the size of the picked-up paper is the same as or larger than the size of the set paper,; and

5 to set the separation time to a second time period if the size of the picked-up paper is smaller than the size of the set paper.

13. The computer readable medium of instructions of claim 11, further comprising:

10 a third set of instructions adapted to control the transfer roller to contact the transfer belt and perform a transfer operation from the time when the rear end of paper is detected by the paper feeding sensor to the set separation time of the transfer roller; and

15 a fourth set of instructions adapted to control the transfer roller to separate the transfer roller from the transfer belt when the separation time of the transfer roller has elapsed.

14. An apparatus for preventing contamination of a transfer roller in an image forming system, the apparatus comprising:

20 a transfer roller separation time setting unit, which sets a separation time of a transfer roller from a transfer belt to a first or second time period according to a comparison result in which the size of paper picked-up from a stacking unit is compared with the size of paper set in a printer driver; and

25 a transfer roller controller, which makes the transfer belt contact the transfer roller to perform a transfer operation from a time when a rear end of paper is detected by a paper feeding sensor to the set separation time of the transfer roller, and which separates the transfer roller from the transfer belt when the separation time of the transfer roller has elapsed.

30 15. The apparatus of claim 14, wherein comparison of the size of the picked-up paper with the size of the set paper is performed with respect to vertical scanning directions of the picked-up paper and the set paper.

16. The apparatus of claim 14, wherein if the size of the picked-up paper is the same as or larger than the size of the set paper, the first time period is a time period from a time when a rear end of paper is detected by a paper feeding sensor to a time when the rear end of paper is detected by the transfer roller.

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17. The apparatus of claim 14, wherein if the size of the picked-up paper is smaller than the size of the set paper, the second time period is within a time period from a time when a rear end of paper is detected by the paper feeding sensor to a time when the rear end of paper is detected by the transfer roller.

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18. The apparatus of claim 14, wherein if the size of the picked-up paper is smaller than the size of the set paper, the second time period is '0'.

19. An image forming system comprising a controller adapted to perform the following operations:

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setting a separation time of a transfer roller from a transfer belt to a first or second time period according to a comparison result in which the size of paper picked-up from a paper feeding cassette is compared with the size of paper set in a printer driver;

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controlling the transfer belt such that the transfer belt contacts the transfer roller to perform a transfer operation from a time when a rear end of paper is detected by a paper feeding sensor to the set separation time of the transfer roller; and

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separating the transfer roller from the transfer belt when the separation time of the transfer roller has elapsed.